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SHANSI REFORMS IN AGRICULTURAL TECHNIQUES

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FOREWORD

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SHANSI REFORMS IN AGRICULTURAL TECHNIQUES

[Following is a translation of a summary of a report by (Chang Hsiao-tung) (Director of the Rural Work Department, CCP Shansi Provincial Committee) published in Shansi Jih-pao, T'ai-yuan, 21 June 1960, page 4.]

This meeting is of great magnitude, as it reviews the technical innovation and technical revolution campaign in the rural areas, appraises and passes judgements on the improved farm tools in Shansi Province, summarizes and promotes the exchange of experiences and propels the province-wide campaign for technical innovations and technical revolution to a new high. While a new situation of continual big leap forward is taking place in our province where the various fronts of industry, agriculture, communications, culture, and finance and trade are racing forward with full force, the holding of this meeting is most timely. We must, through this meeting, further implement the Party's general line for socialist construction, vigorously carry out the technical revolution, strive for the prefulfillment of our province's 12-year agricultural development plan, build our nation into a great and mightily socialist power at an early day and lay a favorable foundation for the future realization of man's lofty ideal--communism.

The Surging Waves of Technical Revolution

The present situation is extremely favorable in our province. Since the implementation of the directives issued last fall by the Eighth Plenary Session of the Eighth Party Central Committee on anti-rightists, mustering vigor and increasing production and practicing strict economy, industrial production has continuously advanced in "full red"; the rural people's communes have traveled along a more healthy and perfect road of development after completing their reorganization; and the farm and irrigation campaign centering around grain and hog production has also attained great achievements. Meanwhile, we have also overcome the serious spring drought

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and successfully completed the spring sowing, with a bumper summer harvest around the corner and cotton and other fall crops growing excellently.

Coupled with the surging wave of a still greater leap forward, a mass campaign for rural technical innovation and technical revolution has suddenly swept the rural villages throughout the province. Like a raging storm, the campaign has developed in such a mighty force and on so large a scale that it extends far and wide, so rich in content and so unprecedented in history. This has created a new situation where "everyone regardless of whether he is a worker, farmer, businessman, or student tries his hand on technical innovations and everywhere, whether it is agriculture, forestry, livestock industry, subsidiary industry or fishery technical innovations are being conducted. Thus, it has set a new stage for the rural technical innovation campaign and provided an impetus for the present continuous leap forward in production.

The emergence of the mass rural campaign for technical innovations and technical revolution is by no means accidental; it is a natural result of our nation's political and economic development, a product of the general line, big leap forward and people's communes, and an urgent demand growing out of the objective requirement for a further development of our social production force as well as the all-round continuous leap forward in agriculture, forestry, livestock industry, subsidiary industry and fishery. The campaign has reflected the strong will and confidence of millions of peasants to bring about a rapid change in their poverty.

First, speaking of the objective foundation, the campaign embraces:

- 1) the realization of the rural communalization program has further developed the productive force and realized the over-all technical transformation of agriculture and paved the way for a broad future;

- 2) since the First Five-Year plan has laid the foundation for our socialist industrialization, which has been further bolstered by two years of continuous leap forward, the Party Central Committee and Chairman Mao issued a great call in 1959 for our struggle to complete rural mechanization within 12 years;

- 3) the two years of continuous leap forward has accelerated the emancipation of the thinking of the people and enriched the knowledge of the broad masses of workers and peasants in their struggle to conquer nature, with the result that people's communes have attained a certain degree of success in mechanizing farm equipment.

Secondly, under the direction of the Party Central

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Committee and Chairman Mao, we have, after attaining a series of victories on the economic, political and ideological fronts, continuously resolved the contradictions between the relations of production and the forces of production and between the superstructure and the economic foundation, thus paving a broad path for the development of the leap in the productive forces. The Communist character of being ambitious and bold in thinking, speaking as well as in doing things has exerted a profound influence on the masses. Consequently, the masses of peasants have an ardent desire for the rapid development of agricultural production.

Particularly, when the Party and the masses have deeply grasped the truth about the effect of combining our great energies with the technical innovations and technical revolution "more, faster, better and more economical" results in the development of agricultural production will be produced; their realization of the over-all mass campaign for technical innovations and technical revolution means that they have provided a basic assurance for a further implementation of the Party general line for socialist construction. Only by a firm grasp of this campaign, can we develop agricultural production rapidly and bring about a complete change in outlook in the rural villages and an all-out revolutionary development of agriculture, forestry, livestock industry, subsidiary industry and fishery.

All those subjective and objective conditions growing out of the demand of the masses and the needs of production, plus the Party leadership and the support from industry, will naturally provide a vigorous force for rural technical innovation and technical revolution that will break down all influences of conservative thinking and habit. Those who fail to see these objective laws or become hesitant and indifferent toward the development of this campaign certainly act against the principle. Inasmuch as the campaign has important political and economic meanings, it not only directly accelerates an over-all growth of the rural economy but also exerts an important influence on the continual leap forward in the 1960's and brings about a newer outlook of the economic, political and ideological fields in the rural areas.

Why has this vigorous and animated rural technical innovation and technical revolution campaign had such a mass appeal from the very beginning? Because, first of all, it has a broad foundation to meet the masses. Everywhere you see peasants who are at work with a tool and who would ask themselves this question: "Why cannot this tool be converted into a machine?" When their thought has finally become a reality, they become so happy that they call the technical reform their "third liberation." Is this not sufficient to describe

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how enthusiastic and zealous are millions upon millions of peasants toward the attainment of the brilliant goal of rural modernization. The technical revolution by all people means the application of the mass campaign method to carry out technical innovations and technical revolution. It is the creative application and development of the Party's mass line in the field of technical reform in agriculture and a revolutionary line Marxism-Leninism. Only in so doing, can we break down the superstitious belief that "technical revolution is too high to reach" and step on the thundering road of technical reform that lead us to build more, faster, better and more economically.

Being a campaign with the characteristic of all people, it has, in the main, demonstrated the following aspects: First of all, the masses of peasantry have broken down superstitions and accepted the technical reform of farm tools as a campaign of their own with every person regardless of sex and age engaging in technical reform, thus enabling the campaign to develop on a broad and unmeasurable scale everywhere. Of the 229 items of innovations and inventions in T'ai-ku Hsien, 86 items are credited to the peasants, 111 to workers and 32 to technicians. Chai Shun-i, a 13-year old youngster of the Hsu-ch'u People's Commune, has successfully invented a pressure water pump capable of watering 4 mou of farmland daily. The pump has been selected as an outstanding tool for national exhibition.

Meanwhile, every individual innovation and invention has quickly spread and receives public support and assistance under the slogan that no advanced experience will be kept secret even one night, and it blooms everywhere. Workers of the Hung-tung Oil Plant built a native bench borer which is capable of drilling 10,512 holes daily instead of the 30 holes per man-day when drilled by manual labor. The news about this tool has quickly spread all over the hsien.

The Hsin-chiang People's Commune has spent two months and held five meetings with veteran farmers and over 40 experts in modern and native farm equipment when it built a multi-purpose seeder suitable for seeding cotton, corn, bean and sorghum crops. They have finally made a break through in mechanized sowing after solving a series of outstanding problems involving seeding processes. Is this not enough to prove that every one is taking part in technical innovation and invention?

Never in the history of farming has such a thing happened that once a "notice" is posted, everyone everywhere goes to work on the "problem." Meanwhile, the socialist emulation drive centering around technical innovations and technical

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revolution has given added impetus to the development of the rural technical reform campaign on a joint effort. In the people's communes, leading cadres, commune members and technicians are pooling their efforts to concentrate on technical reform, thus impelling production while improving their work style. The combined efforts devoted to technical reform between the hsien and communes, between the schools and the various specialized research institutes and between factories and communes have made it possible for them to develop mutually and to concentrate their superior technical strength and material resources at their disposal to crash through major obstacles. As a consequence, the technical revolution campaign has swept every department and every nook and cranny in the rural areas and the emulation drive has developed on a broader and more extensive scale.

This wholesome and lively over-all rural technical reform campaign centering on innovating production tools has crashed through its localized character and is changing to a universal character; it not only brings about an increase in the number of new products and new farm tools quantitatively but is developing a partial qualitative leap from the quantitative changes. Therefore, the campaign represents a great revolution which will bring about a complete change in the outlook of the rural areas. At present, it has shown the following characteristic features:

1. The campaign has developed from just a farm tool reform to an over-all reform of all tools. The reform of tools and equipment for processing industries and service trades made great headway in January and February. By the end of March, more than 21,000 power-driven grinding machines were popularized, grinding over 80 percent of the flour for the province's population; over 87,000 improved kitchen utensils were popularized, thus enabling 70 percent of the total communal mess halls to have improved and semi-mechanized kitchen utensils. In addition, 56 hsien (cities) have used power-driven and partially mechanized equipment for cooking preparations and food processing. Wan-yung Hsien and Fei-yuan Hsien have basically succeeded in using steam and coal gas for cooking and washing by native methods and thus saved a great deal of manpower, while Chin-nan Special District has eliminated over 36,000 cooking personnel and saved 6,000,000 man-days for tending livestock after completing series of improvements on kitchen utensils.

Meanwhile, the situation of non-farm tool reform has also developed the wisdom and ingenuity of the masses and inspired their great ambition and determination for "more and more reform and more bold for more reform," thus accelerating the course of development from the improvement of farm

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tools to the stage of mechanization and semi-mechanization. From the very beginning, the movement was generally started from the demand for saving some manpower for production, but it later developed that this alone was not sufficient and therefore the tool reform movement quickly spread, like a bolt of lightning, everywhere. From January to April 1960, as many as 4,254,000 farm tools of various kinds were invented, copied, remodeled and popularized, an increase of 34.6 fold over the same period of 1959. It is particularly noteworthy to see that the movement is linked with the "Eight Agricultural Characters" and its revolutionary objective is directly aimed at such principal farming operations as plowing, sowing, harvesting, threshing and hauling to break down the superstitions of "being afraid of reform and disallowing revolution."

During the first four months of 1960, over 65,000 deep plows of every description and more than 39,000 automatic close planters were built and copied with the appearance of the numerous fine tools that "are locally made but work as well as foreign imports" suitable for careful and precise work. The power tractor built by the Ma-mu Commune in Hung-tung Hsien, which can be used for plowing, sowing, harvesting, drawing and pumping water, is capable of plowing 25 mou of field daily at a cost of .18 yuan per mou; the cotton spreader made by the Ming-ch'ien Commune in Yu-tz'u Shih is able to finish planting work in one operation, raising the work efficiency by 10 times.

The spaced planter for cereal crops and the directional corn seeder have also been successfully trial-produced. There are over 72,000 fully mechanized or partially mechanized harvesters and shellers in use throughout the province; thus, the beautiful dream for "harvesting wheat without using the scythe and threshing without using a field" has come true in the first summer of the 1960's and a great event in the annals of agricultural industry. In Yu-tz'u Shih, 70 percent of the wheat fields are harvested with semi-mechanized and improved tools and 40 percent of the wheat are threshed by native and modern machines instead of human or animal power. The corn shellers used by the Hsin-chiang Commune in Hou-ma Shih are capable of shelling 150,000 chin of corn per day, equalling the work of 500 men.

The campaign has now developed from the improvement of separate tools to a series of innovations of complete sets of tools for combining several work processes with the setting up of fully mechanized and partially-mechanized production lines. Among the 700-odd tools being presented at this meeting on appraising and selecting advanced tools,

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20 complete series of "dragons" have been assembled for farming, water conservation, mess hall operations, processing industry and livestock operations. The cotton processing factory in I-chang Hsien has reduced its number of employees from 63 to 16 since it succeeded in mechanizing the continuous processes from selecting to packing cotton. This much can be said: the important feature of the rural technical innovation and technical revolution campaign in the present period will be its development from an individual to an overall basis and from a single item to a complete series of tools.

2. The campaign centering around the innovation of production tools is expanding its scope to provide for the development of farming system and techniques, plant cultivation, animal husbandry and farm management. The people in Hsinting Hsien have broken down the superstition that the hsien could have only one crop a year--because of a prolonged frost period--and concentrated on revolutionizing the farming system. Through methods of interplanting and mixed planting, they have increased 200,000 mou of crops in their original farm area this year; they have been devoted to the studies of local climate, topography, water conservation and crop characteristics and have succeeded in developing 13 interplanting and mixed planting practices, covering 45 crop varieties with crop harvests throughout the four seasons. Their slogan is: "with grain taking the command, vegetable crops are planted before the principal crop sowing season and between the ripening periods." Some administrative areas have achieved six harvests.

From a three-mou high-yield farm, the Hsiao-pai Administrative Area of the Hsien-feng Commune has harvested 7,254 chin of sweet potatoes, 310 strings of garlic, 30 chin of garlic seeds, 460 chin of pepper, 14 chin of aniseed, 300 chin of squash and 420 chin of persimmon with a total value of 482 yuan, five times more than by planting a sweet potatoe crop alone. This has set an important course for the province in solving the land problem involving grain and vegetable crops. In addition, efforts have also been devoted to grafting of cereal crops and livestock cross-breeding. For instance, when wheat is grafted with scallion, it is free from wheat rust; Hsiang Ma-chao has succeeded in growing huge pumpkins by his grafting technique; and the transplanting of wheat seedlings has solved the close-planting problem.

3. The application of science is a new event growing out of the technical innovation and technical revolution in the rural area. At present, there are over 760 commune-operated chemical works in the province. In 1958, there were only 39 commune-run fertilizer plants with a total output

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value less than 1,000,000 yuan. By the first quarter of 1960, the number of commune-run fertilizer plants already reached 253, and the 1959 total output value of these fertilizer plants reached 110,000,000 yuan.

It is interesting to note that science has given numerous contributions to the field of plant protection. The plant protective smokescreen made with 9 chin of red phosphorous, 5 chin of sulphur and 1 chin of dynamite covers 4,000 mou in area and lasts two hours at a cost of .02 yuan per mou. The smudge made with nitrate acid compound by Chi-shan Hsien is called a "triple-defense artillery" by the people as it protects against frost, plant insects and diseases. For only .30 yuan in cost, the smudge made with two chin of chemical compound is capable of covering 100 mou in area.

Moreover, the use of electricity for treating soil and seeds, pruning trees, controlling diseases and pests and stimulating plant growth has also achieved marked results. It has been proven by practice that agricultural science is not something abstruse and unfathomable and that as long as we launch the mass campaign in a big way, we will be able to do better than what others have done and gradually succeed in doing what others have failed.

4. Comprehensive utilization has become an important part of the technical innovations and technical revolution, as it not only increases the income of the communes but also helps locate the sources of many items of scarce materials--making useless things useful and transforming one thing into many uses. After oil has been extracted, sesame seeds can also be used for making soap, ink or insecticide; the sediment of wheat after grinding can be used for distilling and making penicillinae; 100 chin of cotton seeds and walnut shells can be extracted into 20 chin of edible oil and the dregs make excellent hog feed; after using coal gas for cooking, the collective mess halls in Fei-yuan Hsien have not only saved 50 percent in coal and manpower but also reclaimed 4 chin of coke oil from every 100 chin of raw coal, and the hsien's 700 mess halls are expected to save 50,000 tons of coal and reclaim 5,000 tons of coke oil this year, creating 2,750,000 yuan of wealth for the State. Therefore, comprehensive utilization is a new thing with a great future and hope showing the wide scope of the technical revolution in the rural area.

When we say that the development of the rural campaign for technical innovations and technical revolution is correct and scientific, it may be so observed from the following:

a. Proper Direction and Clear Objectives. It is a firm and irrevocable policy that our country must modernize its agriculture. But to realize this policy, it is necessary

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to proceed step by step. "With respect to agricultural mechanization, it is our objective to strive for a small solution in four years starting from 1958, a medium solution in seven years and a big solution in ten years." Within the next several years, efforts must be devoted to the campaign for technical innovations and technical revolution centering around tool improvement and semi-mechanization, thus creating conditions for "medium" and "big solutions."

The current appearance of a large number of native-made machines, namely, improved and partially mechanized tools, is aimed at the development of high-level farming operations, mechanization and electrification. In Yu-tz'u Shih, 30 percent of its heavy farming equipment and 80 percent of its draining and irrigation equipment are electrically and mechanically operated; Hsin-ting Hsien has already improved 60 percent of its farm tools and is expected to improve the remaining 40 percent within this year; the Hsin-chiang Commune in Hou-ma Shih has sufficiently renovated tools for cultivating the fields and is able to clear the weeds from all its cotton fields in one day.

b. The basic rule of campaign development is from easy to difficult stages and from lower to higher levels on a continuing basis with uninterrupted innovations and unceasing revolution. It goes in the form of an upward spiral from innovations to consolidation and from popularization to further improvement. When a new technique is created today, it will be universally adopted tomorrow and another newer and better technique will appear. Meanwhile, the development of one machine for multiple purposes and one thing for many uses along practical and simple lines will effectively solve the problem of material shortage in the course of the technical reform in this broad area of agriculture.

c. The present campaign for technical innovations and technical revolution is changing from a supporting to principal role with utmost efforts being first concentrated on mechanization and semi-mechanization to relieve heavy physical labor and manual work during the peak farming season. In the past, the most sturdy and strongest young men were employed for sinking wells, but now with mechanization women alone can do the job just as well. The people have cheerfully caroled: "Here is a girl standing high on the railing of a well, busily digging up dirt with the rolling wooden wheel; her bandana flutters while the iron rammer turns, and the sizzling sound of water echoes with the singing voice." This clearly describes how physical labor is being transformed into a happy event.

In sum, the present achievement of the technical

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innovations and technical revolution in the rural areas is tremendous. The campaign has brought about immeasurable growth in knowledge and wisdom of the masses, raised the commune-run industry to a certain level and helped implement the leading policy of treating agriculture as the foundation of the national economy throughout the entire party. Only through the strengthening of leadership and mustering of vigor, can we be able to form a roaring mass campaign.

Unceasing Revolution with Native Methods as the Main Source

Our province has gained many rich experiences in its over-all mass campaign for technical innovations and technical revolution. It is a highly important task for the rural Party organizations to summarize and popularize these experiences conscientiously and to consolidate and promote the fruitful results of the technical innovation and technical revolution toward a higher stage of development. But then, what are our experiences in the field of technical innovations and technical revolution?

First of all, we must persist in politics taking the command and uphold the guiding ideology of unceasing revolution with continual ideological struggle between two lines. While the political-ideological program is the soul of all tasks, the campaign for technical innovations and technical revolution can never be divorced from the political leadership and must tightly intergrate itself with the ideological revolution. As a matter of fact, the course of technical innovations and technical revolution is fraught with struggles between the thought of unceasing revolution and right-leaning conservatism and between boldness in innovations and invention and the conservation of old conventions. When the ideological revolution of the masses becomes more thorough, superstition will be irradiated more completely, thinking will become more active and bold with better and more innovations and the flame of technical revolution will surge higher and higher.

Since production is in a perpetual state of changes and development and technical innovations and technical revolution are likewise without end, it is necessary to have ambition to drive forward, great revolutionary initiative and enthusiasm without any compromising with the status quo, and to promote the bold spirit of overcoming difficulties and undauntedly carrying on the revolution without being afraid of defeats. The truth is that technical revolution and ideological revolution are interrelated, for it would not be possible to fully develop the revolutionary initiative and

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creative spirit of the masses without opposing all the rightist conservatism and the progress and victory of the technical revolution would greatly raise the ideological level of the masses.

The present struggle between the two lines may be summed up as follow: The right-leaning conservatives look down on the peasants and do not believe that the masses of peasantry are able to carry out the technical revolution; they belittle the native methods and maintain that technical revolution can be undertaken only after the over-all mechanization program is realized; and they ignore the tens of thousands of innovations and inventions; they provide neither leadership nor support for these innovations and inventions which are brushed aside as being "no theoretical foundation."

In the final analysis, this is a struggle between one world outlook and another--the different world outlook between communism and capitalism toward the field of technical transformation of agriculture--and between one line and another. When the Ma-t'ou Commune in Hung-tung hsien embarked on a mass campaign for developing electric power supply and technical innovations, a certain group of persons insisted that only foreign experts and foreign machines can do the job and jeered at the native experts and native-made equipment as half-baked, like "blowing air through a cane with nothing coming through." The commune Party committee led the masses to hold a great debate on whether they wanted the revolution and whether they were able and bold enough to undertake it, while at the same time leveling severe criticism at those who refused revolution and distrusted the masses.

As a result of adopting native methods as a start for the mass campaign, the Ma-t'ou Commune had not only set up a system of electric power networks but also trained a group of persons with the knowledge of the principles of electricity. Then, the conservative elements were compelled to concede their defeat. All of us still remember that during the period of agricultural "cooperativization", the right-leaning conservatives had laughed at it and said: "we have never seen a feather flying up into the heaven." Now, they again laughed at the technical innovations and called it "blowing air through a cane with nothing coming through."

Therefore, the struggle remains the same struggle, but the truth always stands on the side of the masses; the right-leaning conservatives have conceded their defeat in the past and at the present and will undoubtedly admit their defeat in the future. The revolution always wins out in the end. Only when the great masses realize the natural trend of development of the technical innovation and technical revolution

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campaign and its strong social foundation and visualize the great significance of such a campaign attached to socialist construction, can it healthily march forward from victory to victory.

Secondly, the policy of using native methods as a start with simultaneous development of native and foreign methods and promoting self-reliance must be firmly upheld. On the agricultural front, the use of native methods as a start with gradual changes to foreign methods and our equal attention to tool improvement and mechanization and semi-mechanization have a particularly important significance. Only in so doing, can we utilize the inexhaustible supply of resources, and this is the practical way to mobilize the masses to the fullest extent in carrying out technical innovations and technical revolution. It is most noteworthy to point out that the great majority of farm machinery being manufactured and popularized at present are those native-made machines which are simple to make, economical in costs, less in breakdown and excellent in operations.

When the Chang-ching Commune in Yu-tz'u undertook the mass activity of technical innovations, a group of people still harbored the idea that "every thing must be up and up, only emphasizing the foreign and ignoring completely the native-made machines. But after one campaign of on-the-spot inspection, study and criticism against those who harbored such an idea, the commune has realized semi-mechanization for its processing industry, thus saving 230 workers. So, the people joyously declared: "Native methods will pave the way for foreign methods and a small alteration will fill a big order."

Facts have repeatedly proved that the adoption of native methods as a principal step with simultaneous development of native and foreign methods and the promotion of native methods when foreign methods are not feasible is the fundamental policy for promoting the mass campaign for technical innovations and technical revolution. Those who "emphasize the foreign but belittle the native methods" only reveal their true character of being afraid of undertaking revolution, and their lackadaisical thought of depending on some one's assistance only make them run into a blank wall.

Thirdly, great efforts should be devoted to producing new materials on a large scale and promoting a mass campaign for native iron and steel. With the development of the campaign for technical innovations and technical revolution, the shortage of materials will become a long-term problem. Since we cannot suspend the technical innovation and technical revolution campaign just because we do not have sufficient raw materials nor can we allow ourselves to beg for hand-outs, the

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Only way is to launch an all-people's campaign for native iron and steel. Therefore, we must launch a province-wide campaign for making native iron and steel by catching up with Yang-ch'eng Hsien.

Speaking of Yang-ch'eng Hsien, 17 out of a total of 18 people's communes in the hsien are engaged in iron and steel smelting with the establishment of four iron and steel bases forming a dragon chain of native furnaces of every description. Of 138 native furnaces built in the hsien, 99 are already in operation. Yang-ch'eng Hsien turned out a total of 14,184 tons of native iron and 320 tons of native steel in 1959. With its 1960 output plans for 25,000-30,000 tons of native iron and 1,000 tons of native steel, the hsien has produced 9,359 tons of native iron and 243 tons of native steel during the first five months of 1960. Now, a vigorous mass campaign for making lathes and farm machinery is in full swing in the hsien in an effort to accelerate the processes of farm irrigation, rural mechanization and rural electrification and to achieve a complete renovation of farm tools in a year.

Facts have clearly shown that to speed up the technical reform in agriculture, it is necessary to take the same course as Yang-ch'eng. Only when the people's communes take up iron and steel production when they have the conditions to do it, can the problem of material shortage be basically solved, and any genuine effort toward popularizing Yang-ch'eng experience will have a far-reaching effect upon the speed-up of technical reform in agriculture.

Fourthly, another mass campaign for increasing power generation should be launched. Our great emphasis on the utilization of motive power and the expansion of power supply on the basis of the technical innovations and technical revolution, as well as the use of motive power to speed up the mechanization program, will help materialize technical reform in agriculture. Since power generation will change manual labor to mechanization, it is necessary to take advantage of the local factors and promote the experience of Hung-tung Hsien in developing electric power supply on a mass effort.

Hung-tung Hsien has built 61 hydro-electric stations, 41 thermopower stations and 81 hydraulic stations with a combined generating capacity of 12,000 kilowatts, averaging 167.3 watts per household. Now, each household consumes an average of 83.6 watts. There are 103 kinds of machines which are operated by electricity and motive power and 100 hsien and commune-operated factories and enterprises are fully equipped with power equipment; 90 percent of the hsien grain, cotton, edible oil and fodder processing work is being done by motive

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power; the number of workers handling fully mechanized and partially mechanized tools accounts for 50 percent of the total labor force, thus greatly speeding up the process of rural mechanization and semi-mechanization. Power tractors and power hoists are being used. And, particularly, the hsien's 136 upland irrigation centers will be operated by electric power instead of machine-driven force by July which will be an important revolution in the field of irrigation.

Since our province abounds with natural resources, the various localities must take advantages of their local natural factors and launch a mass campaign for promoting a diversified use of water, fuel, wind and marsh gas, as it is the only way to speed up rural mechanization and semi-mechanization.

Fifthly, great efforts should be devoted to strengthening commune-operated industry, particularly the commune-run machine tool industry, which is the most basic segment of operations to speed up the campaign for technical innovations and technical revolution. Since last winter, the commune-operated machine tool industry has developed tremendously, as 875 out of 922 rural people's communes throughout the province have set up machinery factories with a total of 2,166 lathes in operation. The establishment of a commune-operated machine tool industry has brought about a great change in the outlook of the technical innovation and technical revolution campaign.

For instance, before the establishment of machine tool factories, only 3 out of 44 farm machines in the Hsin-chiang People's Commune in Hou-ma Shih were in operation, and the people complained: "the steam engines have gone to sleep, diesel engines stand idle, tractors are on ice and gas engines watch the doors." However, after the commune set up a machine tool factory equipped with even lathes, not only all idle machines became active but also 214 kinds of farm tools totaling more than 50,900 items were manufactured and remodeled, thus greatly raising farm labor efficiency.

At present, many communes are launching a vigorous drive for "one factory with five lathes, one job with iron, lumber and vises and one repair station with three necessary tools (each commune administrative area is required to set up tool repair and assembly station equipped with such basic tools as vises, spanners and broaches), establishing a network of rural machine tool factories to speed technical reform in agriculture.

If we plan to move a step further by gradually improving every commune-run machine tool factory to match the level of the hsien-operated factories, it would be possible for the commune-run machine tool industry to turn out some of the major, precision and fine products manufactured by hsien-operated factories and to achieve equitable division of

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labor forces between hsien and commune-operated industries, creating a tremendous leap for the technical reform in agriculture.

Sixthly, a mass drive for studying culture, theories, science and technology should be launched. With the development of technical innovations and technical revolution, a high tide of cultural revolution will soon appear since the great masses have fully realized the fact that we cannot afford to wait for every one to acquire an education and the knowledge of science and technology before we take up technical revolution, nor can we carry out technical revolution without the knowledge of science and technology on a long-term basis. Therefore, it is necessary to channel the two raging revolutionary currents together.

As practices have proved, technical revolution and cultural revolution are related closely because the continuous improvement in production techniques and the extensive development of technical revolution place an urgent demand for the masses of peasantry to advance their technical and cultural levels. Yet the result of cultural revolution would greatly enrich the knowledge and ingenuity of the masses, assuring the continuous advance and development of technical revolution. The episode of the Hsiung-huo People's Commune in Hung-tung Hsien in making power tractors is one of the numerous vivid examples in the current technical revolution campaign. The commune did not know how to compute the speed of the wheels when it built a power tractor. So when the tractor was tested on the demonstration site, it took off at a speed of 60 li per hour. The spectators remarked: "Look, a tractor becomes an 'automobile!'" Without being discouraged, the commune members at once went to learn how to compute speed and finally restored the "automobile" back to tractor. This example has fittingly illustrated the relationship between technical revolution and cultural revolution.

Yet cultural revolution must combine with the studies of Marxist-Leninist theory and Chairman Mao Tse-tung works. Only through the grasp of Mao Tse-tung's ideology can we establish a correct standpoint and right view and methods for directing the technical revolution campaign to advance along a correct and healthy road.

At present, spare-time rural education is spreading throughout the province. Aside from those factory-commune jointly sponsored schools and commune-operated "red and expert" schools being universally established, many spare-time schools of every form have been set up at reservoir sites, electric power stations, forest stations, iron factories, fisheries and poultry farms.

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Meanwhile, mass scientific research activities have also developed, and the number of small farm stations in the province has increased from 13,000 in 1959 to upward of 25,200 in 1960 with a rise in the number of research personnel from some 32,700 to more than 35,200 men. The number of students in "red and expert" schools has increased by more than 147,500 over 1959; the number of peasants attending courses in the phonetic alphabet designed to wipe out illiteracy has taken a sharp rise to upward of 3,316,000 since the program started in February. In Hu Hsien, the number of key personnel participating in the mass research program on farm tools has increased to more than 6,400.

All this clearly shows that the great masses, as masters of their own country, are earnestly grasping every opportunity and doing their best to study culture and science. It may be predicted that in the not too distant future, there will emerge a "red and expert" technical force that will serve in a triple capacity as worker, student and researcher and that will usher in a big leap forward in agricultural science, solving the problems unsolved by old experts and filling in the gaps left by the professionals.

Popularizing, Consolidating and Improving Inventions

While there is no doubt that the campaign for technical innovations and technical revolution in the rural areas throughout the province has attained tremendous achievements, it is still only a beginning as far as our far-reaching strategic objective toward technical reform in agriculture and the comparison between the big leap forward in production and the needs of the people are concerned. Since our immediate objective calls for basically realizing semi-mechanization of farming operations in 1961, it is necessary to counteract the thought of a coward who is afraid of difficulties while opposing complacency over technical reform.

But the present problem lies mainly in the uneven development which may be summed up in the following three categories: about 30 percent of the areas in the province are generally classified as comparatively advanced in campaign development on a mass scale with fine records of innovations and inventions and following a proper course; about 45 percent are classified as average areas that have produced many innovations and inventions, but the lack of understanding on the part of some leading cadres toward the campaign direction and production aspects and their failure to grasp the trend of campaign development has delayed proposing new targets and new quotas; and the remaining 25 percent lack vigor and enthusiasm toward technical innovations and technical revolution

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As the campaign has not been shaped up as a spontaneous mass activity. For this reason, it is necessary to strengthen leadership and to draw up an over-all plan.

In accordance with the farming seasons and local characteristics, we must definitely set our targets and organize campaigns in separate stages and in different periods to crash the key points with extensive promotion with every one summarizing his experience. We must organize at least four campaigns a year and proceed with the work on innovations and inventions which are to be examined, standardized, popularized, consolidated and improved by separate groups. Meanwhile, we must set up agricultural production quotas and technical revolution targets one quarter ahead; we must strive to complete tool improvement and semi-mechanization for tilling, harrowing, cultivating, hoeing, harvesting, threshing and hauling processes within the shortest possible time to lay a favorable foundation for mechanization and electrification; combine innovations or inventions with popularization, consolidation and improvement; we must take the view that "popularization" is part of the efforts toward rapid development of social production forces and that only through popularization can production be further improved and the advanced level be spread to the entire society. Innovation is inseparable from popularization, a view which must be established through still more complex and sharp ideological struggles.

We believe that through our efforts to let politics take the lead, to promote pace setters and mass campaigns, to sponsor a series of contests, on-the-spot inspections, reviews, exchanges of views and to organize mutual cooperation, demonstrations and promotional work, we will certainly be able to spread innovations and inventions all over the country. Again, we must continue promoting industry to support agriculture and the gigantic cooperation of communism, with factories cooperating with communes. The essence of the urban-rural technical innovations and technical revolution campaign is actually a communistic cooperation campaign on a mass basis which inject the communist spirit and a new moral quality into relationship between workers and peasants, between cadres and masses and among the masses themselves.

The growth of the campaign has brought the cooperation between factories and communes to a new stage. That is, many factories have integrated the support programs for technical reform in agriculture with their own technical reform plans and made an over-all arrangement in an effort to solve the difficult problems involving the villages and factories and to further the alliance between workers and peasants and urban-rural ties. But there are still some factories which treat

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the cooperation between factories and communes as only a "stopgap" or which use the vulgar means of "making a bargain" from the industrial-agricultural mutual support program. This attitude is erroneous and must be totally criticized.

The task confronting us is a stupendous, glorious but tremendous undertaking, and there is no existing rule for us to go by. But the road can be built and experience can be gained. So long as we raise aloft the banners of the general line, great leap forward and people's communes, resolutely rely on the masses and continuously promote the communist style of being bold in thinking, speaking and doing things and our fine tradition of modesty and industry, our goal for rural water conservancy, mechanization and electrification will be attained within the quickest possible time.

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